

### Replica-Plating

Genetic experiments, in particular, often require the tedious and repetitious picking of colonies from one agar plate to a series of others, for example in the isolation of auxotroph mutants, or in scoring unselected markers segregating in crosses. A surprisingly simple solution to this problem has been found that should supersede previous attempts in the same direction (for example, the delayed enrichment or layer-plating method of Lederberg and Tatum).

A disc of tightly woven velvet is mounted on a wooden support by a metal collar strip. The disc is cut to correspond to most of the agar surfaces used. The agar plate with a hundred or so colonies is carefully inverted onto the velvet disc, and very little pressure beyond the plate's own weight is used to bring the velvet surface into intimate contact with the colonies and agar. The plate is then elevated, leaving an impression of the colonies on the fabric. This can then be used to "print" almost an indefinite number of copies on fresh agar plates using the same procedure. With care, a surprising degree of fidelity and sharpness can be obtained for the prints. The original plate can usually be used repeatedly, if necessary. There are any number of detailed variations in the application of this technique, as well as new kinds of experiments that are made possible, which require no discussion here. The velvet discs can be washed and steam-sterilized for repeated use.--J. Lederberg, Department of Genetics, University of Wisconsin, Madison, Wisconsin.

P.S. (October 3, 1951), by J.L. and E.L. The above technique has been applied to a proof of the spontaneous origin of phage- and sm-resistant mutants. Repeated replicas of a bacterial film of growth to selective agar show that most mutants occur in clones. In addition, the proportion of mutants can be enriched by taking inocula from the sites on plain agar corresponding to the resistant clones. After several stages of enrichment, resistant mutants were isolated in pure culture. Details are in press (J. Bacteriology).